

WHAT IS CLAIMED IS:

1. A method implemented in a mobile radio terminal for reducing signaling associated with the mobile radio terminal entering a new geographic coverage area, comprising:

5 establishing a connection with a radio access network;
receiving from the radio access network information associated with one of the geographic coverage areas indicating whether the one geographic coverage area requires a geographic coverage area update procedure;
during the connection, selecting the one geographic coverage area; and
10 determining whether to perform a geographic coverage area update procedure depending on the received information associated with the one geographic coverage area.

2. The method in claim 1, wherein the information associated with one or more geographic coverage areas indicates restricted geographic coverage areas that require a geographic coverage area update procedure.

15 3. The method in claim 1, wherein the information associated with one or more geographic coverage areas indicates geographic coverage areas that do not require a geographic coverage area update procedure.

20 4. The method in claim 2, wherein the geographic coverage area update procedure involves communication with a core network coupled to the radio access network.

5. The method in claim 4, wherein the mobile terminal sends a geographic coverage area message to the core network in the geographic coverage area update procedure.

25 6. The method in claim 1, wherein the radio access network is shared by two operators and the information indicates that the geographic coverage area update procedure should be performed for geographic coverage areas that are shared by the two

operators and the geographic coverage area update procedure need not be performed for geographic coverage areas that are not shared by the two operators.

7. The method in claim 1, wherein the geographic coverage area is a location area, the radio access network is a UMTS terrestrial radio access network (UTRAN), and
5 the mobile radio terminal is in a connected mode.

8. The method in claim 7, wherein the mobile terminal receives the information as a location area access indicator in a system information message broadcast in the location area.

9. The method in claim 7, wherein the location area access indicator is a flag
10 which when set indicates that a location update is required when entering the location area, and when not set indicates that a location update is not required when entering the location area.

10. A method implemented in a cellular communications system including a radio access network serving plural geographic coverage areas comprising sending from
15 the radio access network over a radio interface information associated with one of the geographic coverage areas indicating whether the one geographic coverage area requires a geographic coverage area update procedure when a mobile radio terminal selects the one geographic coverage area.

11. The method in claim 10, wherein the mobile radio terminal uses the
20 information to determine whether to perform a geographic coverage area update procedure before selecting the one geographic coverage area.

12. The method in claim 10, further comprising:
determining which geographic coverage areas have an access restriction, and
broadcasting in those geographic coverage areas a geographic coverage area
25 restriction indicator.

13. The method in claim 12, wherein the geographic coverage area is a location area, the radio access network is a UMTS terrestrial radio access network (UTRAN), and the mobile radio terminal is in a connected mode.

14. The method in claim 13, wherein the mobile radio terminal receives the
5 information as a location area access indicator in a system information message broadcast in the location area.

15. The method in claim 14, wherein the location area access indicator is a flag which when set indicates that a location update is required when entering the location area, and when not set indicates that a location update is not required when entering the
10 location area.

16. The method in claim 10, wherein the geographic coverage area update procedure involves communication with a core network coupled to the radio access network.

17. The method in claim 10, wherein the radio access network is shared by two
15 operators and the information indicates that the geographic coverage area update procedure should be performed for geographic coverage areas that are shared by the two operators and the geographic coverage area update procedure need not be performed for geographic coverage areas that are not shared by the two operators.

18. Apparatus for use in mobile radio terminal, comprising:
20 radio transceiving circuitry configured to establish a connection with a radio access network, and

electronic circuitry configured to perform the following tasks:

process signals received from the radio access network information
associated with one of the geographic coverage areas served by the radio access
25 network indicating that the one geographic coverage area requires or does not
require a geographic coverage area update procedure;

select during the connection the one geographic coverage area; and

determine whether to perform a geographic coverage area update procedure depending on the information associated with the one geographic coverage area.

19. The apparatus in claim 18, wherein the information associated with the one geographic coverage area indicates that a geographic coverage area update procedure is required.

20. The apparatus in claim 18, wherein the information associated with the one geographic coverage area indicates that a geographic coverage area update procedure is not required.

21. The apparatus in claim 18, wherein the geographic coverage area update procedure involves communication with a core network coupled to the radio access network.

22. The apparatus in claim 21, wherein the electronic circuitry is configured to send via the transceiving circuitry a geographic coverage area message to the core network in the geographic coverage area update procedure.

23. The apparatus in claim 18, wherein the radio access network is shared by two operators and the information indicates that the geographic coverage area update procedure should be performed for geographic coverage areas that are shared by the two operators and the geographic coverage area update procedure need not be performed for geographic coverage areas that are not shared by the two operators.

24. The apparatus in claim 18, wherein the geographic coverage area is a location area, the radio access network is a UMTS terrestrial radio access network (UTRAN), and the mobile terminal is configured to receive the information as a location area access indicator in a system information message broadcast in the location area.

25. The apparatus in claim 24, wherein the location area access indicator is a flag which when set indicates that a location update is required when entering the location area, and when not set indicates that a location update is not required when entering the location area.

26. Radio access network apparatus for use in a cellular communications system serving plural geographic coverage areas, comprising:

data processing circuitry configured to provide information associated with one of the geographic coverage areas indicating that the one geographic coverage area requires or
5 does not require a geographic coverage area update procedure when a mobile radio terminal selects the one geographic coverage area, and

radio transceiving circuitry configured to send and receive signals over a radio interface including to send the information provided by the data processing circuitry.

27. The apparatus in claim 26, wherein the mobile radio terminal uses the
10 information to determine whether to perform a geographic coverage area update procedure before selecting the one geographic coverage area.

28. The apparatus in claim 26, wherein the data processing circuitry is further configured to determine which geographic coverage areas have an access restriction and to
15 broadcast in those geographic coverage areas a geographic coverage area restriction indicator.

29. The apparatus in claim 28, wherein the geographic coverage area is a location area, the radio access network is a UMTS terrestrial radio access network (UTRAN), and the information as a location area access indicator in a system information message broadcast in the location area.

30. The apparatus in claim 29, wherein the location area access indicator is a flag
20 which when set indicates that a location update is required when entering the location area, and when not set indicates that a location update is not required when entering the location area.

31. The apparatus in claim 26, wherein the geographic coverage area update
25 procedure involves communication with a core network coupled to the radio access network.

32. The apparatus in claim 26, wherein the radio access network is shared by two operators and the information indicates that the geographic coverage area update procedure should be performed for geographic coverage areas that are shared by the two operators and the geographic coverage area update procedure need not be performed for geographic coverage areas that are not shared by the two operators.

33. A method for use in a cellular radio communications system comprising:
establishing a connection between a mobile radio terminal and a radio access network serving plural geographic coverage areas, and

transmitting from the radio access network information associated with one of the geographic coverage areas indicating whether the one geographic coverage area requires a geographic coverage area update procedure,

wherein during the connection, when the mobile radio terminal is selecting the one geographic coverage area, the mobile radio terminal determines whether to perform a geographic coverage area update procedure depending on the transmitted information associated with the one geographic coverage area.

34. The method in claim 33, wherein the geographic coverage area update procedure involves communication with a core network coupled to the radio access network.

35. The method in claim 33, wherein the radio access network is shared by two operators and the information indicates that the geographic coverage area update procedure should be performed for geographic coverage areas that are shared by the two operators and the geographic coverage area update procedure need not be performed for geographic coverage areas that are not shared by the two operators.

36. The method in claim 33, wherein the geographic coverage area is a location area, the radio access network is a UMTS terrestrial radio access network (UTRAN), and the mobile radio terminal is in a connected mode.

37. The method in claim 36, wherein the mobile terminal receives the information as a location area access indicator in a system information message broadcast in the location area.

38. A system broadcast message format transmitted from a UMTS terrestrial radio access network (UTRAN) over a radio interface to mobile radio terminals, comprising:

a system information message identification field;

a location area identification field; and

a location area access restriction field indicating whether a mobile radio terminal in a connected mode with the UTRAN is required to perform a location area update procedure when entering the location area identified by the location area identification field.

39. The system broadcast message format in claim 38, wherein the location area identification field includes a flag which is set for a location area that is shared by two operators and which is not set for a location area that is not shared by two operators.